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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/671,057

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EXAMINER

TRUONG, CAMQUY

ART UNIT

PAPER NUMBER

2195

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/671,057

Applicant(s)

ACCAPADI ET AL.

Examiner

Camquy Truong

Art Unit

2195

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 6/19/07.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

1. Claims 1-30 are presented for examination.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. The following terms lack proper antecedent basis:

- i. Said allocated segment – claim 9;
- ii. The CPI value – claim 3;
- iii. The writing and the removing – claim 10.

B. The claim language in the following claims is not clearly understood:

- i. As to claims 1, 11, and 21, it is not clearly indicated what are the abbreviation of SMT; Lines 4-5, it is not clearly understood how the "determining ... is poor performing" step is performed (i.e. by checking the first ID in the first queue".
- ii. As to claims 3, 13, and 23, it is not clearly indicated what is the abbreviation of CPI.

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iii. As to claims 10, 20, and 30, lines 7-11, it is not clearly understood that base on what information so that the checking step is performed (i.e. base on table history).

iv. As to claim 10, lines 16-19, it is not clearly indicate how " the writing and the removing" steps are performed (i.e. back to previously SMT processor from the first SMT processor) since the first thread is moved to the second queue of second processor and is completed.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2, 11-12, and 21-22 are rejected under 35 U.S.C. 102(b) as anticipated by Alfieri (U.S. Patent 5,745,778).

4. As per claims 1, 11, and 21, Blood teaches the invention as claimed including a computer-implemented method of scheduling threads for a plurality of SMT processors (col. 1, lines 58-60), said method comprising:

determining that a first thread in a first run queue is a poor performing thread (if the CPU system becomes busy, the thread groups tend to migrate downward. The thread groups in a busy CPU system may become distributed in an unbalanced manner

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such that some CPUs are busier than others causing some thread groups to be executed at a slower than desirable rate, col. 8, line 62 - col. 9, line 12), wherein the first run queue corresponds to a first SMT processor (there will be a total of eleven run queues: 8 level 0 queues (one for each CPU), two level 1 queues, and one level 2 queue, col. 6, lines 59-64);

in response to the determination:

writing a first identifier corresponding to the first thread to a second run queue, wherein the second run queue corresponds to a second SMT processor (as check against operation of the system in an unbalanced condition over a prolonged period of time, the system will periodically clear all level 0 and level 1 run queues and pull all thread groups back up to level 2 queue, col. 6, lines 42-49; col. 7, lines 1-8; and lines 23-25; col. 9, lines 13-15); and

removing the first identifier from the first run queue (col. 7, lines 5-8 ; col. 9, lines 14-15).

5. As to claims 2, 12, and 22, Alfieri teaches:

determining that a second thread in the second run queue is another poor performing thread (if the CPU system becomes busy, the thread groups tend to migrate downward. The thread groups in a busy CPU system may become distributed in an unbalanced manner such that some CPUs are busier than others causing some thread groups to be executed at a slower than desirable rate, col. 8, line 62 - col. 9, line 12);

in response to the determination regarding the second thread;

writing a second identifier corresponding to the second thread to the first run queue ( as check against operation of the system in an unbalanced condition over a prolonged period of time, the system will periodically clear all level 0 and level 1 run queues and pull all thread groups back up to level 2 queue, col. 6, lines 42-49; col. 7, lines 1-8; and lines 23-25; col. 9, lines 13-15); and

removing the second identifier from the second run queue (removing the thread group from the level 2 run queue, col. 7, lines 5-8; col. 9, lines 14-15).

### **Claim Rejections - 35 USC § 103**

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 9-10, 19-20, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alfieri (U.S. Patent 5,745, 778) in view of Ben Num et al. ( or herein after" Ben") (U.S. Patent 6,928,482 B1).

8. As to claims 9-10, 19-20, and 30, Alfieri teaches:

determining that the first thread's CPI is worse on the first SMT processor than it was on the previous SMT processor (col. 8, line 62 – col. 9, line 5);

the writing and the removing steps are performed in response to determining that the first thread's CPI is worse on the first SMT processor than on the previous SMT processor (as check against operation of the system in an unbalanced condition over a prolonged period of time, the system will periodically clear all level 0 and level 1 run queues and pull all thread groups back up to level 2 queue, col. 6, lines 42-49; col. 7, lines 1-8; and lines 23-25; col. 9, lines 13-15; col. 7, lines 5-8 ; col. 9, lines 14-15).

9. Alfieri does not explicitly teach sensing that the first thread is about to complete; computing a CPI value for the first thread upon its completion; determining that the CPI value is worse than a threshold value; in response to the determination, checking whether the first thread was previously moved to the first SMT processor from a previous SMT processor selected from a plurality of SMT processors that includes the first SMT processor and the second SMT processor.

10. However, Ben teaches sensing that the first thread is about to complete; computing a CPI value for the first thread upon its completion (col. 13, lines 3-40; col. 16, line 30 – col. 17, line 3); determining that the CPI value is worse than a threshold value (col. 5, line 10-34); in response to the determination, checking whether the first thread was previously moved to the first SMT processor from a previous SMT processor selected from a plurality of SMT processors that includes the first SMT processor and the second SMT processor (col. 7, lines 4-28; col. 12, lines 6-14).

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11. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of sensing that the first thread is about to complete; computing a CPI value for the first thread upon its completion; determining that the CPI value is worse than a threshold value; in response to the determination, checking whether the first thread was previously moved to the first SMT processor from a previous SMT processor selected from a plurality of SMT processors that includes the first SMT processor and the second SMT processor as taught by Ben because these allow the data packets can be quickly and efficiently processed and routed between the various nodes of the network, as the result the operation of the entire network is enhanced.

### ***Allowable Subject Matter***

12. Claims 3-8, 13-18, and 23-29 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Camquy Truong whose telephone number is (571) 272-3773. The examiner can normally be reached on 8AM – 5PM.




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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-3756.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIP. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIP system, contact the Electronic Business Center (EBC) at 866-217-9197(toll-free).

Camquy Truong

June 18, 2007

  
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